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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,983	08/30/2001	Yuri Galperin	EXP.046A	7664

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EXAMINER

CHENCINSKI, SIEGFRIED E

ART UNIT	PAPER NUMBER
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3695

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 09/942,983	Applicant(s) GALPERIN ET AL.	
	Examiner SIEGFRIED E. CHENCINSKI	Art Unit 3695	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 158-167 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 158-167 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claim 162 is objected to** because of the following informalities:

The capital letter "T" appears to be missing after the phrase "total payment" because this claim provides a formula and the phrase is specifying the meaning of the formula's components.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 163-167 are also rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The first three lines of independent claim 163 do not appear to have support in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 158, 161-163, 166 and 167 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ervolini et al. (US Pregrant Publication 2002/0035530 A1, hereafter Ervolini) in view of Wolfram Geometric Series, Summation, 1999-2010, hereafter Wolfram.

Re. Claim 158 & 163, Ergolini discloses a computer system or computer-implemented process that analyzes pools of loans by considering the combination of interest rates and credit quality which drive asset performance or by incorporating financial reporting. Prepayments occur when prepayment is permitted and refinancing results in some specified level of net new proceeds. (Abstract, ll. 1-4, 8-10; p. 1, [0009]-ll. 1-6, 13-15). Ergolini discloses a system for determining prepayment scores representative of prepayment propensity of borrowers, including consumers (p. 1, [0009]-l. 2-3 – residential mortgages), for loans, with claim 158 as exemplary, comprising:

a communications server connected via a network to a plurality of loan terminals configured to accept and transmit loan application, wherein the communications server is configured to receive transmitted loan applications (pp. 2-3, [0035], [0042]; computer network – p. 4, [0049]-ll. 3-6. The server is implicit since a server is a computer with a processor in a network which to commands from a client p. 4, [0047]);
an application parser electronically connected to the communications server and configured to receive the transmitted loan applications from the communications server and to parse the loan applications into at least loan information and applicant information (p. 4, [0047]-[0048] - parser – an application device which breaks data into

Art Unit: 3695

smaller chunks so that an application can act on the information (MS Computer Dictionary, 4th Ed., 1999); parse – to examine in a minute way, examine critically (Webster's Collegiate, Tenth Ed., 1998). Ervolini's discloses a parser and the performance of parsing of loan and applicant information. Receiving loan data – Fig's 1 and 2)

a prepayment model library database comprising loan prepayment models electronically connected to the application parser and configured to receive the loan information, to fit the loan information into at least one loan prepayment model, and to transmit at least one loan prepayment model that matches the loan information; and a prepayment calculation server comprising a prepayment score generation model electronically connected to the prepayment model library database and configured to receive the loan prepayment model and to calculate prepayment scores for each loan application based at least in part upon the loan prepayment model and the prepayment score generation model, wherein the prepayment calculation server is further adapted to transmit the prepayment scores to any one of the plurality of loan terminals via the network (pre-payment models - p. 1, [0004]-II. 1-7; [0009]; model database – p. 4, [0047]-[0048]; server – p. 4, [0046]-[0047] - see above; prepayment scores – as percentages – p. 1, [0005]; each asset score – p. 1, [0009]-II. 9-10; [0010]-I. 3, a rate or score; transmit – p. 4, [0046]-[0049]-the network suggests receiving queries and transmitting of results back out over a network);

wherein the prepayment score is calculated from the formula:

$$Score : \sim \frac{TP(T)}{T}$$

T

where T represents time and P represents prepayment; and

wherein the plurality of loan terminals are adapted to use the prepayment scores to adjust loan terms (implicit in Ervolini – Abstract, I. 26 – implied use for financability).

(Ervolini discloses time, including

a) time is inherent in all considerations of prepayment propensity

b) the entire background discussion inherently concerns itself with future time – e.g. p. 1, [0003]-[0005], [0004]-monthly-I. 4, [0005]-each period-I. 8.

Art Unit: 3695

Re. formulas – all such formulas inherently concern themselves with a score to be computed from at least the variables T and P. A source of such formulas is incorporated by reference by Ervolini in p. 1, [0007]-“Standard Formulas for the Analysis of Mortgage Backed Securities”, Jun. 1, 1990, Public Securities Association).

c) Ergolini does not explicitly disclose a summation formula for determining a prepayment score. However, Wolfram discloses a generic summation formula. Therefore, it would have been obvious to an ordinary practitioner at the time of Applicant's invention to have combined the disclosures of Ervolini and Wolfram with his own knowledge in order to create a system for determining prepayment scores representative of prepayment propensity of borrowers for loans, motivated by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

Re. Claim 161 & 166, none of Ervolini or Wolfram explicitly disclose wherein total prepayment at time T is calculated from the formula:

$$P(T) = (1/S) \sum_{S=1}^S P(\text{sub } s)(T)$$
 motivated by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

where S represents the number of scenarios and P represents the prepayment amount for a given scenario.

However, Ervolini and Wolfram's disclosures regarding summation formulas involving the variables of time and pti would have been fully familiar with variation of a summation formula for the scoring of prepayment propensity. Therefore, it would have been obvious to an ordinary practitioner at the time of Applicant's invention to have combined the disclosures of Ervolini and Wolfram with his own knowledge in order to create a system for determining prepayment scores representative of prepayment propensity of borrowers for loans, motivated by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

Re. Claim 162 & 167, none of Ervolini or Wolfram explicitly disclose wherein the total prepayment, accumulated by time, in scenario s is calculated from the formula:

$$P_{sub\ s}(T) = \sum_i P_i(t) p_{sub\ s}(t_{sub\ s})$$

where $p(t)$ is a prepayment value.

However, Ervolini and Wolfram's disclosures regarding summation formulas involving the variables of time and p_{ti} would have been fully familiar with variation of a summation formula for the scoring of prepayment propensity. Therefore, it would have been obvious to an ordinary practitioner at the time of Applicant's invention to have combined the disclosures of Ervolini and Wolfram with his own knowledge in order to create a system for determining prepayment scores representative of prepayment propensity of borrowers for loans, motivated by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

5. Claims 159 & 164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ervolini in view of Wolfram as applied to claims 158 and 163, and further in view of Heckerman et al. (US Patent 6.321,225, B1, hereafter Heckerman).

Re. Claim 159 & 164, none of Ervolini or Wolfram explicitly disclose wherein the prepayment model library database further comprises:

a model training server configured to create the loan prepayment models for the prepayment model library database; and

prepayment historical data connected to the model training server, the prepayment historical data further comprises prepayment statistics regarding loans of various types.

However, Heckerman discloses a training model server (Col. 21, ll. 36-52). The Prepayment Historical data is used by Heckerman. The ordinary practitioner would have seen it as obvious to use prepayment historical data in applying Heckerman's disclosure.

Therefore, it would have been obvious to an ordinary practitioner at the time of Applicant's invention to have combined the disclosures of Ervolini, Wolfram and Heckerman with his own knowledge in order to create a system for determining prepayment scores representative of prepayment propensity of borrowers for loans including the use of a model training server and prepayment historical data, motivated

by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

6. Claim 160 & 165 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ervolini in view of Wolfram as applied to claims 158 and 163, and further in view of Traub et al. (US Patent 6.321,225, B1, hereafter Traub).

Re. Claim 160 & 165, none of Ervolini or Wolfram explicitly disclose wherein the prepayment calculation server further comprises an econometric model that generates Low Discrepancy Sequence (LDS)-based scenarios of econometric parameters for input to the prepayment calculation server. However, Traub discloses the use of LDS based scenarios of financially related data (Col. 6, l. 19). Inclusion of the projection and evaluation of the prospective impact of future interest rates in a prepayment analysis would have made it obvious to the ordinary practitioner to evaluate econometric data known to impact interest rates. Therefore, it would have been obvious to an ordinary practitioner at the time of Applicant's invention to have combined the disclosures of Ervolini, Heckerman and Traub with his own knowledge in order to create a system for determining prepayment scores representative of prepayment propensity of borrowers for loans including the evaluation of econometric data, motivated by a desire to provide a computer implemented system for analyzing credit risks for loans by assets (Ervolini, p. 1, [0002]).

Response to Arguments

7. Applicant's arguments filed October 6, 2009 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Siegfried Chencinski whose telephone number is

Art Unit: 3695

(571)272-6792. The Examiner can normally be reached Monday through Friday, 9am to 6pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Charles Kyle, can be reached on (571) 272-6746.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington D.C. 20231

or Faxed to (571)273-8300 [Official communications; including After Final communications labeled "Box AF"]

or Faxed to (571) 273-6792 [Informal/Draft communications, labeled "PROPOSED" or "DRAFT"]

Hand delivered responses should be brought to the address found on the above USPTO web site in Alexandria, VA.

SEC

Art Unit 3695

January 16, 2010

/Narayanswamy Subramanian/
Primary Examiner, Art Unit 3695